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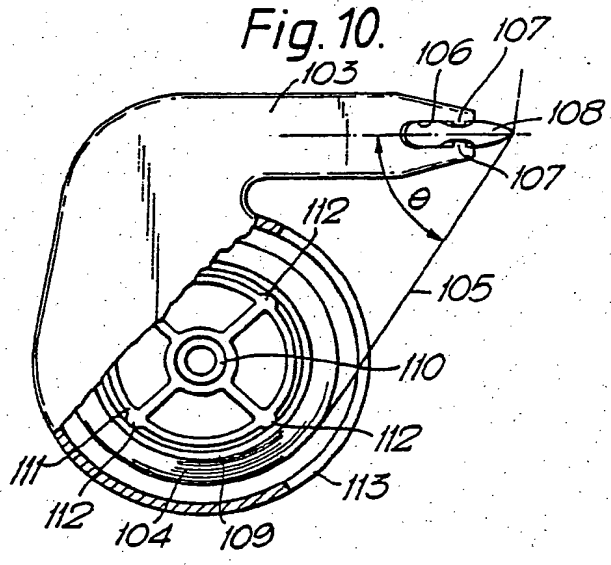
(54) Treating surfaces.

(57) A newly painted surface is protected by applying over the surface a film (105) of a non-adhesive clinging plastics material. This allows the paint to dry through it and prevents sticking against any contacting surface. The film (105) is subsequently removed. The film is applied using an applicator with a resilient blade (108) at the end of an arm (103). The film (105) is on a roll (104) of strip material which is fed over the blade (108) which is used to urge the film into contact with the surface. The applicator can also be used to apply the film to mask a surface prior to painting. In this respect, the film could also be of an adhesive material.

Fig. 10.



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TREATING SURFACES

This invention relates to methods and apparatus for treating surfaces.

The invention is more particularly concerned with methods and apparatus for preventing newly painted or varnished doors, windows or the like sticking when they are closed. The invention is also concerned with methods and apparatus for masking surfaces.

Painting doors and windows commonly causes difficulties because they often have to be closed, for security reasons, before the painted surfaces are fully dried. This causes contacting painted surfaces to stick together which can damage the paintwork and make it difficult to open the door or window subsequently. Even if the door is painted early in the morning with a fast drying paint, it is seldom fully dry by the evening when the door has to be closed.

It is one object of the present invention to provide a method and apparatus that can be used to protect newly coated surfaces and reduce these difficulties.

According to one aspect of the present invention there is provided a method of protecting a newly coated surface including the steps of allowing the coated surface to become touch dry, applying over the surface a film of non-adhesive clinging plastics material to protect the surface and subsequently removing the film when the protection is no longer required.

The coating may be paint or a filler.

According to another aspect of the present invention there is provided an applicator for applying strip material to a surface, characterised in that the applicator includes an applicator member located at the end of an arm and that the strip material is fed over the applicator member such that the applicator member can be used to urge the strip material into contact with a surface that is coated or is to be coated.

The strip material is preferably in a roll.

The applicator member may be a resilient blade.

The strip material may be of a non-adhesive clinging plastics material.

According to a further aspect of the present invention there is provided a method of masking a surface from paint or other coating substance in which a strip of material is applied over the surface prior to painting or coating and is subsequently removed after painting or coating the surface adjacent the strip, characterised in that the strip is a film of a non-adhesive clinging plastics material.

Film applicators and methods of treating paintwork, in accordance with the present invention, will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a perspective view of one film applicator;

Figures 2A to 2F are sectional views of alternative blades of the film applicator;

Figure 2G is a plan view of the blade shown in Figure 2F;

Figure 3 is a plan view of an alternative blade;

Figure 4 illustrates the method of use of the applicator;

Figure 5 is a side elevation view of an alternative applicator;

Figure 6 is a plan view of the applicator of Figure 5;

Figure 7 is an enlarged view of a part of the applicator of Figure 5 and 6;

Figure 8 is a side elevation view of a further applicator;

Figure 9 is a plan view of the applicator of Figure 8; and

Figure 10 is a partly cut away side elevation view of an alternative applicator.

With reference to Figure 1, the film applicator is in the form of a moulded, rigid plastics case 1, with a cylindrical receptacle 2 and a laterally extending applicator arm 3. The receptacle 2 contains a roll 4 of a thin, flexible plastics film 5 of plasticised PVC or polyolefin such as is commonly sold under the name 'cling film' for wrapping food but need not be food grade for this application. This film is non-adhesive, but clings to itself and most smooth surfaces by a combination of effects, namely the exclusion of air, the blocking effect produced by the material of the film, the thin and light nature of the film, and static electricity. In the present application, where applied to a newly-painted surface, the tackiness of the paint also aids adhesion. The film is preferably between about 10 and 12 micron thick but may be in the range of about 8 to 60 micron. The width of the film 5 is about 23mm but could be between about 5mm to 35mm. The film 5 is lead out of the receptacle through an opening in the form of a slot 10 located on the under side of the applicator arm 3 and extends across the tip 11 of the arm.

Set into the tip 11 of the arm 3 is a flat applicator member in the form of a blade 12 of a soft deformable rubber or plastics material, such as a polyurethane (as, for example, sold under the trade mark ULON). The blade 12 tapers to its outer edge 13 which may be rounded or sharply angled, as shown in Figures 2A to 2E. The edge 13 of the blade 12 may be curved across its width, as shown

in Figure 3, such that it is slightly longer midway across its width than at opposite sides. The blade could be moulded in this shape, or held bowed in the applicator to give it some curvature. A guide or applicator pip could be moulded into the arm of the case, or, as shown in Figure 2F and 2G, a guide pip 15 could be moulded into the blade.

A cutter 14 with a serrated edge may be mounted on the upper side of the applicator arm 3.

With reference now to Figure 4, the applicator is shown being used to protect the newly painted edge 20 of a door 21 where it will come into contact with the door jamb 22 when closed. The applicator can be used to protect any surface where the paint, or other coating, is touch dry, that is, it has a dry or slightly tacky surface, but may still be wet underneath. The film 5 is held against the top of the edge 20 by the blade 12 so that the film clings to the surface by virtue of its inherent clinging characteristics and any residual tackiness in the paint. The applicator is then pulled down the edge 20 of the door 21 whilst the blade 12 pushes the film 5 lightly against the painted surface. The cling bond, in the shear mode, is sufficient to hold the film and cause it to be unrolled from the roll 4 through the slot 10 in the case 1.

When the entire edge has been covered, the film 5 is cut at some point beyond the blade 12 either by the cutter 14 or a separate knife or scissors. Any edges of the film 5 projecting over the side of the painted surface are folded back against the door by hand. The door 21 can then be closed, trapping the film between the edge of the door and the door jamb. The film effectively prevents the painted surface 20 sticking to the jamb 22 and allows the door to be opened freely.

The film can be easily removed by peeling away from the surface so as to allow the paint to dry further. The film is sufficiently permeable to the paint solvent, however, to allow the paint to dry through it and can be left in place for some time. Typically, the film would be left in place for about a week by which time the paint would be substantially dry and hard. The film could then be removed and the door or window left open for a day or so to expose the paint surface to atmosphere following which the door can be closed without the need for the film.

If preferred, another strip of film can be applied to the painted surface if the door has to be closed again before the paint has dried fully. It has been found that removal of the film does not visibly damage the underlying paint.

In some cases, according to the width of the film, it may be necessary to apply several strips of film to the painted surface, side- by-side and overlapping to protect the surface effectively.

The curved edge 13 of the blade 12 can help reduce the risk of wrinkling and of air bubbles being caught under the film 5. The blade 12 also allows the film to be applied over slight protuburances without being torn.

Instead of a solid plastics blade 12 other applicator members, such as a brush or roller could be used. Figures 5 to 7 show an applicator incorporating a roller 50. The roller has a convex surface 51 giving it a barrel shape.

The invention could be used to protect surfaces coated by other substances such as varnish or fillers.

Silicone rubber is sometimes applied to repair gaps in windows and to act as a sealant with the frame. Using the present invention, a strip of film could be applied over the silicone rubber before it has cured. The window is then closed so that the silicone rubber is deformed to fill the gaps and conform to the surface of the frame.

The film can be removed readily from the silicone rubber after it has partially, or fully cured.

The film applicator could also be used for masking surfaces prior to painting or to coating with other substances. In particular, it can be used to apply a strip of the film 5 to the edge of, for example, window panes. The strip of film 5 is applied to the glass, close to the frame, prior to painting. The frame can then be painted in the usual way with the film 5 protecting the glass from any overlap of paint. Before the paint dries, the film 5 is removed leaving a straight painted line. When used for masking, the applicator may be modified slightly, as shown in Figures 8 and 9. This modified applicator 80 has an open side 81 which enables the film to be applied close to the edge of the surface to be painted. The applicator 80 also has an applicator arm 83 which is slightly longer than the arm 3 of the applicator shown in Figure 1, so that the tip of the arm can reach the surface to be masked without obstruction by any adjacent frame. Where used for masking purposes, the film could be of an adhesive or non-adhesive material.

An alternative construction of applicator for use in protecting coated surfaces or for masking is shown in Figure 10. This applicator has an applicator arm 103 which extends tangentially of a roll 104 of film 105. The tip of the applicator arm 103 has a channel 106 with opposed beads 107 that serves to retain a resilient applicator blade 108. The roll 104 has a cardboard core 109 and is supported on a fixed spindle 110 by means of a moulded plastic hub 111. The hub 111 has four radially projecting pips 112 which form a secure push fit in the cardboard core 109. The film 105 is lead off the roll 104 through an opening 113 in the casing of the applicator and over the edge of the applicator blade 108, making an angle θ with the blade of between about 60 degrees and 55 degrees accord-

ing to the amount of film 105 left on the roll 104.

Claims

1. A method of protecting a newly coated surface including the steps of: allowing the coated surface (20) to become touch dry; applying over the surface (20) a film (5) of a non-adhesive clinging plastics material to protect the surface; and subseqently removing the film (5) when the protection is no longer required.

2. A method according to Claim 1, characterised in that the coating is paint.

3. A method according to Claim 1, characterised in that the coating is a filler.

4. An applicator for applying strip material to a surface, characterised in that the applicator includes an applicator member (12, 50) located at the end of an arm (3, 83), and that the strip material (5) is fed arm over the applicator member such that the applicator member can be used to urge the strip matrial into contact with a surface (20) that is coated or to be coated.

5. An applicator according to Claim 4, characterised in that the strip material (5) is in a roll (4).

6. An applicator according to Claim 4 or 5, characterised in that the applicator member (12) is a resilient blade.

7. An applicator acoording to any one of Claims 4 to 6, characterised in that the strip material (5) is of a non-adhesive clinging plastics material.

8. A method of masking a surface from paint or other coating substance in which a strip of material is applied over the surface prior to painting or coating, and is subsequently removed after painting or coating the surface adjacent the strip, characterised in that the strip (5) is a film of a non-adhesive clinging plastics.

Fig.1.

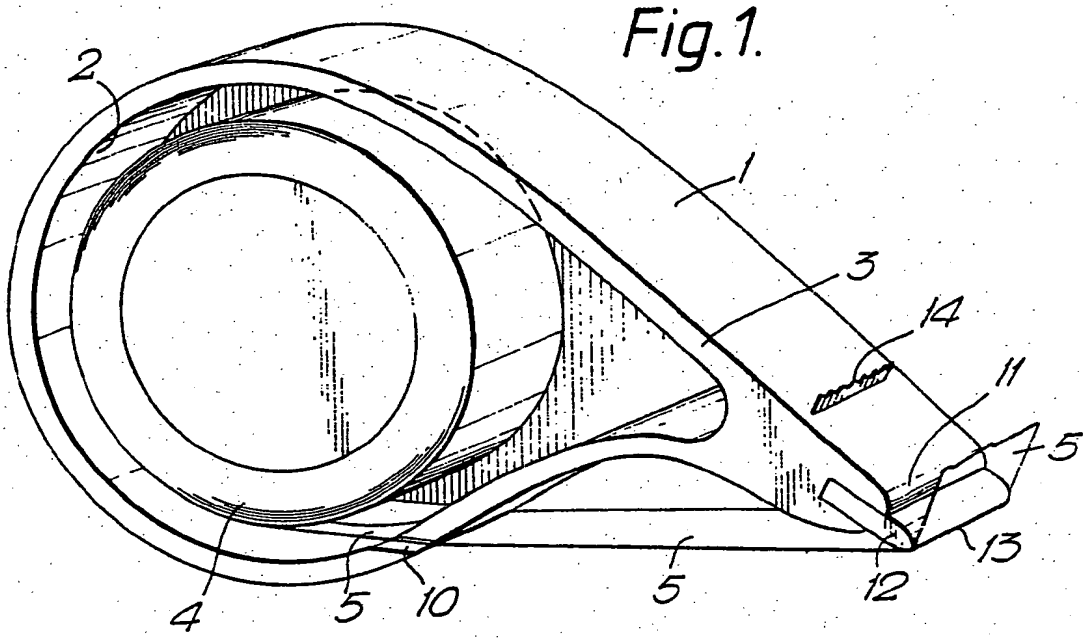

Fig.2A.

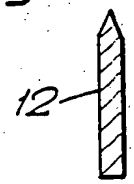

Fig.2B.

Fig.2C.

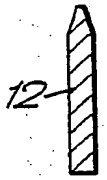

Fig.2D.

Fig.2E.

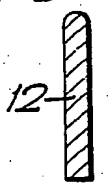

Fig.2F.

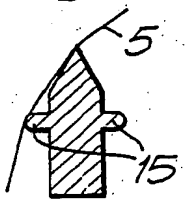

Fig.2G.

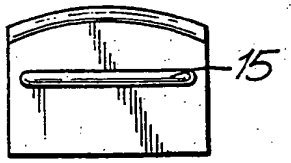

Fig.3.

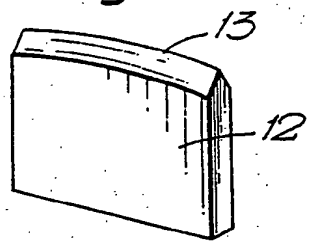

Fig. 4.

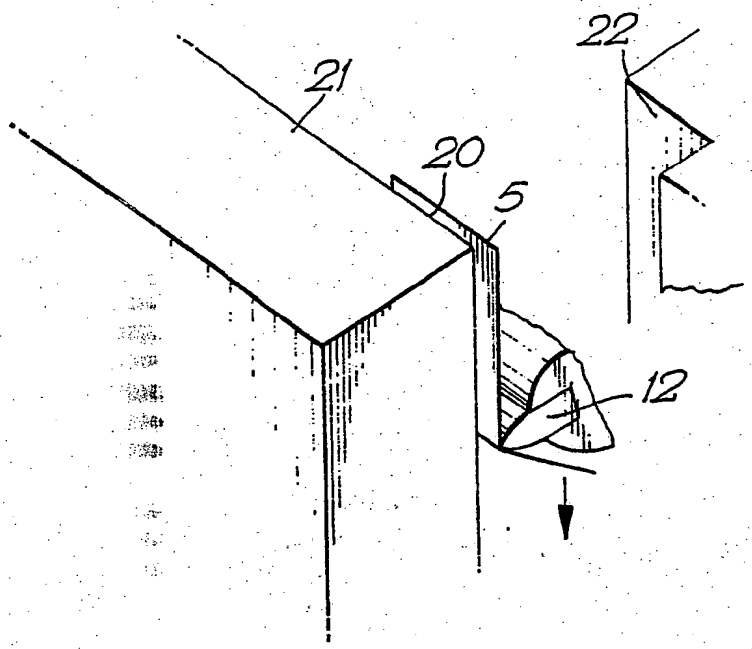
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Fig. 10.

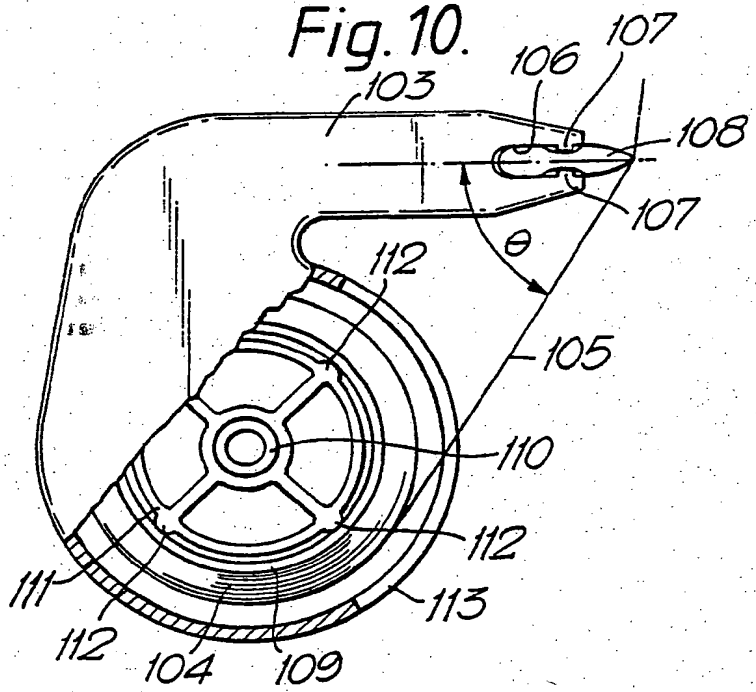
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Fig.5.

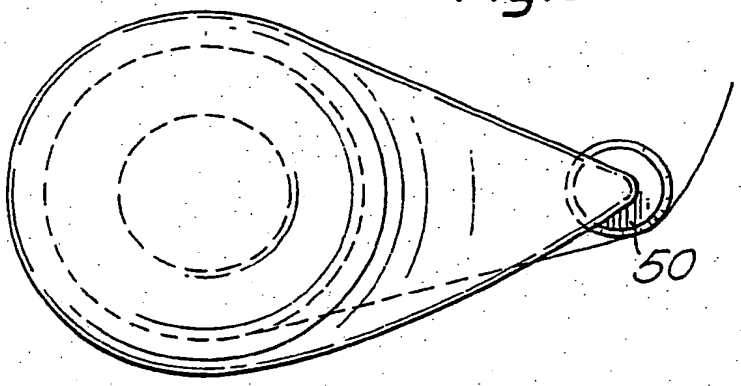


Fig.6.

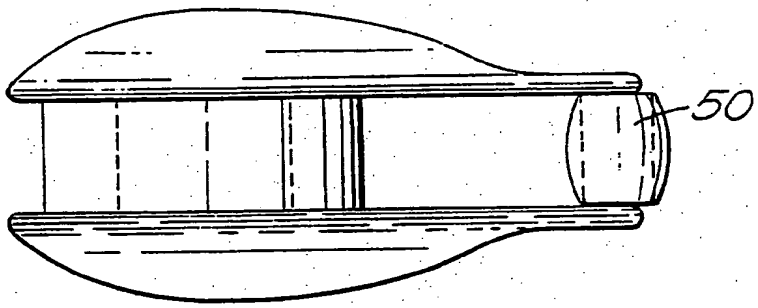


Fig.7.

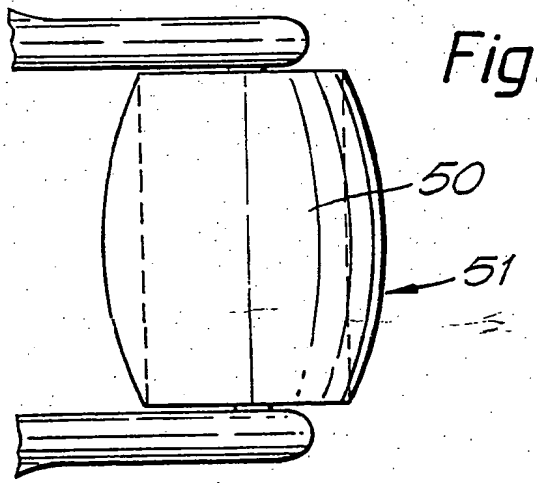


Fig.8.

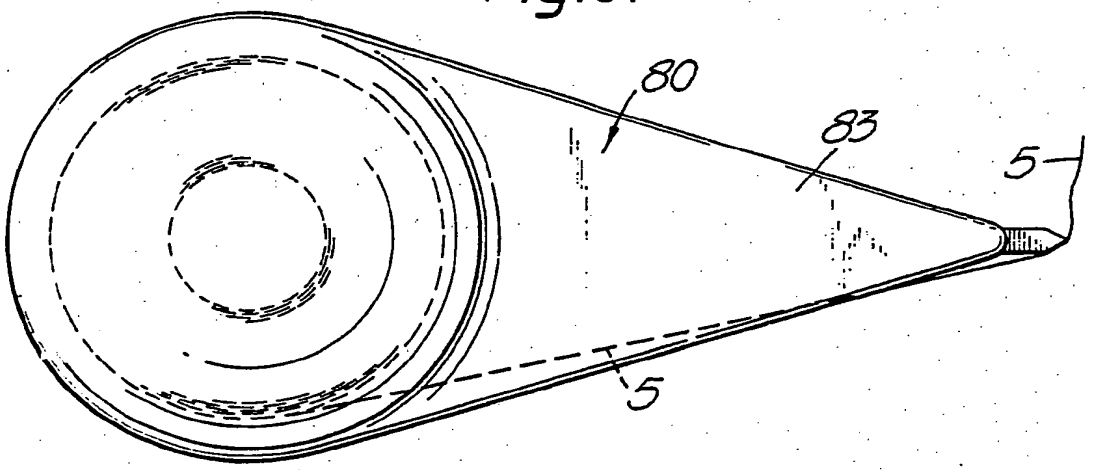
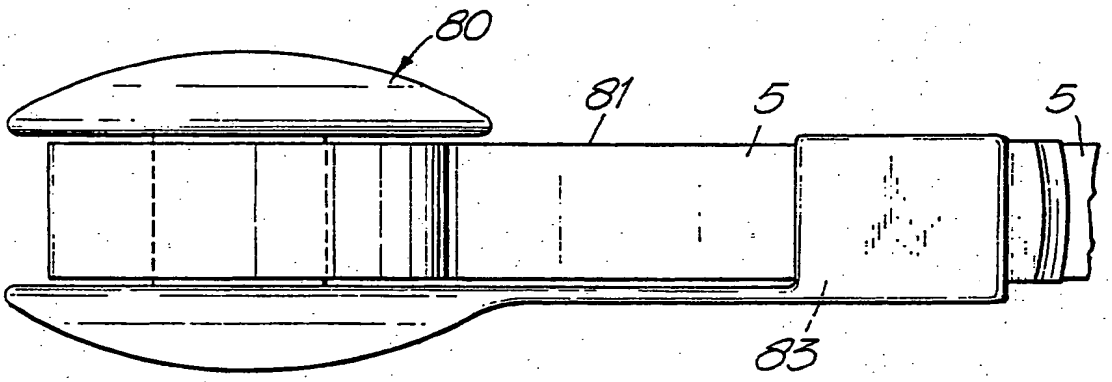


Fig.9.



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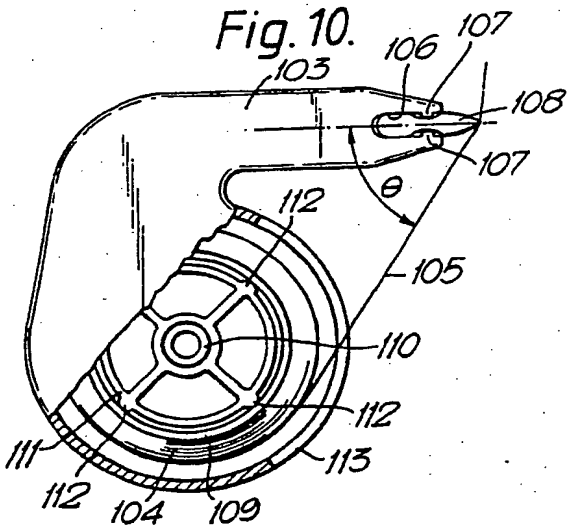

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European Patent Office

EUROPEAN SEARCH REPORT

Application Number

EP 89 30 6493

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	EP-A-0 168 924 (AUTOTYPE INTERNATIONAL LTD) * Page 3, lines 14-17; claims *	1,2,8	B 05 D 3/00 B 05 C 21/00 B 05 C 11/00
X	US-A-3 871 940 (R. ANTONIONI) * Drawings; claims *	4,5	
A		1,2,7,8	
X	US-E- 30 787 (D.L. POOL et al.) * Drawings; claims *	4,5,6	
A	WO-A-8 304 380 (K. JAKOBSSON) * Drawings; claims *	4,5,6	
A	EP-A-0 243 498 (MITSUI TOATSU CHEMICALS, INC.) * Abstract; claims *	1,8	
X	US-A-3 536 569 (J.L. GOSNELL) * Whole document *	4,5,6	
A		1,2,7,8	TECHNICAL FIELDS SEARCHED (Int. Cl.5) B 05 D B 05 C B 65 H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	07-02-1991	BROTHIER J-A.L.

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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E : earlier patent document, but published on, or after the filing date
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L : document cited for other reasons

& : member of the same patent family, corresponding document

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